

unit 3 is so constructed as to be able to measure the number of measured distortions corresponding to the number of unknown pieces of node information (tractions and displacement values) at nodes set at least on a boundary Γ_5 to be described later. In other words, the number of measurement points m is set to be equal to or greater than the number of pieces of unknown node information at nodes n_b at least on the boundary.

The numerical analysis method adopted in the numerical analyzer 5 according to the first embodiment can flexibly deal with a change in the shape of the structure as an object to be monitored due to, for example, the creation of a crack but, on the other hand, has difficulty in analyzing, for example, because it is difficult to set boundary conditions and the like around the coupling members J (e.g., screw, rivet) due to the fact that the shape and receiving pressure of the coupling members J are complicated if the structures $S1$, $S2$ made of a plurality of different materials are coupled by the coupling members J as in the structure S shown in FIG. 10. Thus, this numerical analysis method is thought to have efficiency and precision problems in monitoring the first structure $S1$ and the coupling members J .

Accordingly, in the structure monitor system 1 according to the fourth embodiment, analysis is carried in the numerical analyzer 5 by combining the numerical analysis method according to the first embodiment and a finite element method. Specifically, the numerical analyzer 5 is so constructed as to divide the structure S into an area Ω_1 and an area Ω_2 partially overlapping each other, to calculate